REMARKS

Claims 1-8,10-14 and 16 have been amended. Claims 1-16 remain pending in the application. Reconsideration is respectfully requested in light of the following remarks.

Provisional Double Patenting Rejection:

The Office Action provisionally rejected claims 1-16 under the judiciary created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of co-pending Application No. 10/061,792. Applicant will address this rejection when and if the rejection becomes non-provisional.

Section 102(e) Rejection:

The Office Action rejected claims 1-5, 8 and 16 under 35 U.S.C. § 103(e) as being anticipated by Gabzdyl et al. (U.S. Patent 6,202,163) (hereinafter "Gabzdyl")

Gabzdyl does not teach a plurality of activity detector and clock control units each configured to <u>predict</u> when its associated functional unit will be inactive <u>for a threshold amount of time</u> and configured to shut off a clock to its associated functional unit in response to its associated functional unit <u>being predicted to be</u> inactive <u>for at least the threshold amount of time</u>, as recited in claim 1. Nor is this taught by any of the other cited references, either alone or in combination. The Examiner refers to Fung to teach determining if an associated functional unit will be inactive for a threshold amount of time. At column 5, lines 49-55 teaches Fung "... the hardware monitor 79 senses predetermined address ranges, such as an I/O address range and a video memory address range, and monitors the activity of addresses by the CPU to addresses within these ranges. If no data transfers occur within the specified address ranges for predetermined periods of time, then a power control mode is entered to conserve power in the computer system." Fung teaches sensing past and current activity. Fung clearly does not teach or suggest <u>predicting</u> inactivity in functional units within an integrated device, much less

predicting when such inactivity will continue for a threshold period of time. Therefore, Claim 1 and all claims depending therefrom patentably distinguish over the combination of the cited art.

Amended independent claims 16 recites features similar to those of claim 1. Therefore, Claim 16 along with all claims depending therefrom patentably distinguish over the cited art for at least the reasons given above with regard to claim 1.

Furthermore with regard to amended claim 2, none of the cited art taken singly or in combination teaches an activity detector configured to monitor some or all of the output signals produced by an associated functional unit to predict when the functional unit will be inactive. Therefore, the Applicants believe that claim 2 and all claims depending therefrom patentably distinguish over Gabzdyl for at least these further reasons.

Furthermore with regard to amended claim 4, none of the cited art taken singly or in combination teaches "wherein the input signals received by the first functional unit comprise data operated on by the first functional unit, and wherein the first activity detector and clock control unit is configured to monitor the flow of data to the first functional unit to predict when the first functional unit will be inactive" as recited in the claim. In particular, the Examiner refers to Fig. 5 and col. 4, lines 34-46 of Gabzdyl. However, this portion of Gabzdyl refers to operations based on instructions, not data flow to a functional unit. The Examiner is relying on Gabzdyl's *instruction* decoders 403-406 to correspond to the plurality of activity detector and clock control units recited in Applicant's claim. As shown in Fig. 3 of Gabzdyl, data bus 318 is not even received by the instruction decoders within unit 310. Thus, Gabzdyl clearly does not teach or suggest that the input signals received by the first functional unit comprise data operated on by the first functional unit, wherein the first activity detector and clock control unit is configured to monitor the flow of data to the first functional unit to predict when the first functional unit will be inactive. Therefore, the Applicants believe that claim 4 patentably distinguishes over Gabzdyl for at least these further reasons.

Section 103(a) Rejection:

The Office Action rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Gabzdyl in view of Suzuki (U.S. Patent 5,987,616), claims 6 and 7 as being unpatentable over Gabzdyl as applied to claim 1 above, and further in view of Fung (U.S. Patent 6,584,571), claims 11 and 12 as being unpatentable over Gabzdyl as applied to claim 10 above, and further in view of Fung, claim 9 as being unpatentable over Gabzdyl as applied to claim 1 above, and further in view of Pappert (U.S. Patent 6,380,760), claim 13 as being unpatentable over Shiell, et al. (U.S. Patent 6,138,232) (hereinafter "Shiell") in view of Suzuki and Gabzdyl, and claims 14 and 15 as being unpatentable over Shiell, Suzuki and Gabzdyl as applied to claim 13 above, and further in view of Fung.

Amended independent claims 10 recites features similar to those of claim 1. Therefore, the Applicants believe that claim 10 along with all claims depending therefrom patentably distinguish over the cited art for at least the reasons given above with regard to claim 1.

Claim 13 recites, in pertinent part "an activity detector coupled to the instruction scheduler and configured to monitor the instruction stream to predict a lack of instructions for the integer execution unit and to predict a lack of instructions for the floating point execution unit". Shiell's IRET detector 217 has no associated functional unit and only detects the execution of an IRET instruction (see Shiell column 6, lines 40-50). Therefore, the IRET detector of Shiell cannot be the activity detector of claim 13. Moreover, the IRET detector does not predict a lack of instructions for an integer execution unit and predict a lack of instructions for a floating point execution unit. Claim 13 and all claims depending therefrom patentably distinguish over the combination of Shiell and Suzuki for at least these reasons.

Information Disclosure Statement:

Applicant submitted an information disclosure statement and accompanying Form PTO-1449 on August 2, 2004. Applicant notes that reference "C3" on the Form PTO-1449 was not initialed by the Examiner. Applicant respectfully requests the Examiner to carefully consider reference "C3" and return a copy of the initialed and signed Form PTO-1449 for this reference. For the Examiner's convenience, a copy of the previously submitted Form PTO-1449 is enclosed.
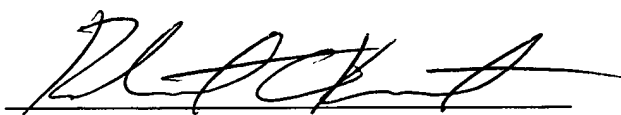
CONCLUSION

Applicants submit the application is in condition for allowance, and notice to that effect is respectfully requested.

If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above referenced application from becoming abandoned, Applicant hereby petitions for such extension. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5500-68500/RCK.

Also enclosed herewith are the following items:

☒ Return Receipt Postcard

☐ Petition for Extension of Time

☒ Copy of previously submitted Form PTO-1449 from August 2, 2004

☐ Terminal Disclaimer.

Respectfully submitted,

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